



FortiExtender Release Notes

VERSION v3.1.0

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FortiExtender v3.1.0 Release Notes

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TABLE OF CONTENTS

Change Log	4
Introduction	5
Supported Models	5
What's new in FortiExtender v3.1.0	5
Configuration Help	6
FortiGate CLI Configuration	6
FortiExtender-20D CLI Configuration	6
FortiExtender-20D GUI	7
FortiExtender-40D CLI Configuration	7
Upgrade Information	10
Upgrading to FortiExtender v3.1.0	10
Firmware upgrade procedure	10
Firmware mapping to an operator	10
Product Integration and Support	11
Modes of operation	11
Connected UTM mode	11
FortiExtender v3.1.0 support	11
USB modem support	11
FortiExtender-20D	11
Resolved Issues	16
Known Issues	17

Change Log

Date	Change Description
2017-02-02	Initial Release of v3.1.0 Build 0197.

Introduction

This document provides the following information for FortiExtender build 0197:

- [Supported Models](#)
- [What's new in FortiExtender v3.1.0](#)
- [Configuration Help](#)
- [Upgrade Information](#)
- [Product Integration and Support](#)
- [Resolved Issues](#)
- [Known Issues](#)

For more information on upgrading your FortiExtender device, see the *FortiExtender Administration Guide*.

Supported Models

FortiExtender supports the following models on GA build 69 or above: FEXT-20D, FEXT-40D-INTL, and FEXT-40D-NAM.



The built-in modems residing in FEXT-40D-NAM and FEXT-40D-INTL can also be upgraded with compatible operator specific modem firmware.

What's new in FortiExtender v3.1.0

The following is a list of features and enhancements that are supported in 3.1.0:

- Modem firmwares for most of the popular operators like Verizon, AT&T, T-Mobile, BELL, Rogers, Vodafone, Orange, 02 and etc. are preloaded into the FortiExtender-40D flash storage enabling easy installation with minimalistic configuration.
- Delinking of the SIM card to a specific SIM slot thereby enabling the SIM to be inserted in any of the freely available SIM slots.
- Visual LED indicators will depict the progress of modem firmware upgrade.
- Ability to recover the modem automatically in the event of a failure during a modem firmware upgrade.
- Ability to load the FortiExtender OS image from the USB storage device.
- HTTPS access to FortiExtender over port 60443 from cellular WAN side while using a public IP address.
- Modem status in CLI/GUI will show details of both the SIM cards.
- Ability to show signal history graphics in the web GUI on the supported FortiExtender models.
- Bridge mode support enabling FortiExtender work with all kinds of routers and not just Fortinet's.
- Ability to report signal (RSSI) fluctuations beyond a configured range to syslog via FortiGate routers.

- Access Point Name configuration for the FEXT is available from FortiGate CLI and GUI apart from configuration on the FEXT CLI and configuration differs from the earlier releases. You can refer to the CLI help section for configuration details.

Configuration Help

FortiGate CLI Configuration

If an APN were to be configured from the FortiGate this release mandates the configuration of the APN in the format "CarrierName:APN". The below example illustrates the Carrier set to Verizon and APN set to vzwinternet.

```
config extender-controller extender
  edit FX04DN4N16000233
    set access-point-name "Verizon:vzwinternet"
    set ppp-username user
    set ppp-password 123
    set ppp-auth-protocol auto
  end
```

FortiExtender-20D CLI Configuration

1. Configuring APN from the FortiExtender-20D CLI which can also help initiate the Cellular internet data connection despite the absence of FortiGate APN config or for that matter the absence of FortiGate itself while operating in bridge mode. The example below illustrates the Carrier set to Verizon and APN set to vzwinternet.

```
config modem sim-config
  add Verizon
    set Carrier Verizon
    set APN vzwinternet
    set USER user1
    set PWD 123
    set MODE auto
    set AUTH PAP
  end
```

2. Bridge mode configuration:

- Bridge Mode Enable

```
config system bridge-mode enable
  reboot
```

- Bridge Mode IP

```
config system bridge-mode-ip 192.168.100.2
  reboot
```

Note: The default IP address is 192.168.1.2, unless it's set by the user.

FortiExtender-20D GUI:

- The FortiExtender 20-D GUI home page is displayed below:

FortiExtender FXT20D

Revision: NTG9X15C_45.04.20.00 r18728 uscbd-fwbuild1 2014/02/26 03:50:31

IMEI: 355745050159806

IMSI: 310120021080824

Carrier: Sprint

Signal Type: N/A

Cell Signal RSSI: -76 dbm

Cell Signal SINR: NaN dB

General

Host Name	FXT02D4N16000011 [Change]
Serial Number	FXT02D4N16000011
Firmware Version	FortiExtender-20D v3.1.build0197,170126 (Interim)
System Time	Thu Feb 2 18:50:07 UTC 2017
Uptime	12 min(s)

Device Info

IP Address	192.168.1.110
Network Mask	255.255.255.0
Gateway IP Address	184.250.5.66
IP Address	192.168.1.99
Device Name	FGT81E4Q16000001
State	connected

Hardware

CPU 0.0%

Memory 17.0%

Home Page accessible at https port 60443 from both WAN and LAN sides with an exception being http accessible only via LAN side.

- The FortiExtender 20-D GUI configuration page is displayed below:

FortiExtender FXT20D

Network Configuration

Address Mode: ☒ Static ☐ DHCP ☐ Bridge

Default Local IP Address: 192.168.1.2

Default Local Network Mask: 255.255.255.0

Default Gateway IP: 192.168.1.1

SIM Configuration

Carrier/SIM Config: [\[CARRIER CONFIG\]](#) [\[SIM CONFIG\]](#)

CAPWAP Configuration

Discovery Type: ☒ Auto ☐ Static ☐ Broadcast

Extender Controller Port: 5246

Extender Data Port: 25246

FortiGate IP: 192.168.1.1

Firmware Configuration

Extender Upgrade: [Choose File](#) No file chosen

FortiExtender-40D CLI Configuration

Most carriers in North America can work without any predefined configuration whatsoever, but may need APN config at times when authentication comes into play. Configuring APN, authentication, modem firmware to be used for any given operator on the FortiExtender-40D directly can also help initiate the Cellular Internet data connection without the need of any externally supplied configuration parameters. Currently, barring the APN and its related authentication parameters, most other parameters like the modem firmware to be used cannot be configured from the FortiGate.

1. Configuring APN and auth parameters with Verizon as an example, and APN as vzwinternet. Authentication parameters are to be set on a need basis only. Getting the Carrier Name right is instrumental in making the configuration work well.

```
config modem sim-config
add Verizon
set Carrier Verizon
set APN vzwinternet
set USER user1
set PWD 123
set MODE auto
set AUTH PAP
end
```

2. Bridge mode configuration:

- Bridge Mode Enable

```
config system bridge-mode enable
reboot
```

- Bridge Mode IP

```
config system bridge-mode-ip <x.x.x.x>
reboot
```

3. Signal notification config

- Periodic

```
config modem setting
set rssi-interval 30 Periodically reports detailed signal statistics to FortiGate.
end
```

- Threshold Based

```
config modem setting
set rssi-threshold 20 Reports RSSI fluctuations over 20dBm (default is 10dBm).
```

- The new FortiExtender-40D GUI home page is displayed below:

FortiExtender FXT40D

Revision: SW19X15C_05.05.58.01 r27044 carmd-fwbuild1 2015/03/05 00:02:40

IMEI: N/A IMEI: 359376060171452

IMS: N/A IMS: 31148006532335

Carrier: N/A Carrier: Verizon

Signal Type: LTE

Cell Signal RSSI: -80 dbm

Cell Signal SINR: -3.2 dB

General REFRESH

Host Name	FX04DN4N16000867 [Change]
Serial Number	FX04DN4N16000867
Firmware Version	FortiExtender-40D v3.1,build0197,170126 (Interim)
System Time	Thu Feb 2 18:37:07 UTC 2017
Uptime	12 min(s)

Device Info REFRESH

IP Address	192.168.1.111
Network Mask	255.255.255.0
Gateway IP Address	166.161.171.9
IP Address	192.168.1.99
Device Name	FGTB1E4Q16000001
State	connected

Hardware [RESTART](#)

CPU 12.0%

Memory 18.0%

- The new FortiExtender-40D configuration page is displayed below:

FortiExtender FXT40D Dashboard Configuration ? Help

Network Configuration

Address Mode: ☐ Static ☒ DHCP ☐ Bridge

Default Local IP Address: 192.168.1.2

Default Local Network Mask: 255.255.255.0

Default Gateway IP: 192.168.1.1

SIM Configuration

Default SIM: ☐ SIM 1 ☒ SIM 2

Carrier Profiles: [\[CLICK FOR DETAILS\]](#)

Mapping Mode: ☐ Static ☒ Auto

Carrier/SIM Config: [\[CARRIER CONFIG\]](#) [\[SIM CONFIG\]](#)

CAPWAP Configuration

Discovery Type: ☒ Auto ☐ Static ☐ Broadcast

Extender Controller Port: 5246

Extender Data Port: 25246

FortiGate IP: 192.168.1.1

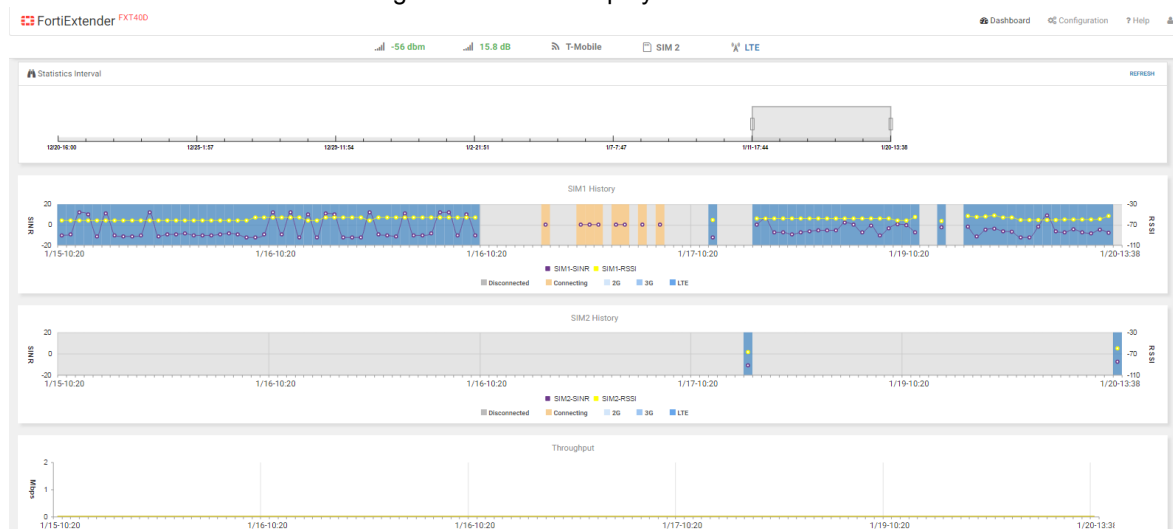
Firmware Configuration

Extender Upgrade: [Choose File](#) No file chosen

SIM Firmware Config: [Choose File](#) No file chosen
[\[ALL SIM FIRMWARE LIST\]](#)

SIM PRI Config: [Choose File](#) No file chosen
[\[ALL SIM PRI LIST\]](#)

- The new FortiExtender-40D GUI signal statistics is displayed below:



Upgrade Information

Upgrading to FortiExtender v3.1.0

FortiExtender-20D and FortiExtender-40D are capable of operating on v3.0.0 GA build 69 and above.

The built-in modems residing in FEXT-40D-NAM and FEXT-40D-INTL can also be upgraded with compatible operator specific modem firmware.

Firmware upgrade procedure

Firmware Information:

The Sierra EM7355/EM7305 Modem Software comprises of two files:

- A PRL file with the file name ending ".nvu"
- A firmware file with the ending ".cwe"

Both files are required to be flashed onto the Modem to connect to the operator of your choice.

Upgrade instructions and the MODEM firmware have been uploaded to [Fortinet Customer Support site](#) in the download directory under: ".../FortiGate/v5.00/5.4/Sierra-Wireless-3G4G-MODEM-Upgrade/".

Firmware upgrade via the FortiExtender GUI:

1. Login to the web GUI of the FortiExtender with the default credentials. For the username enter *admin* and leave the password blank.
2. In the FortiExtender GUI from in the bottom right corner, click **Sim Firmware Config**.
3. Select the corresponding firmware ending in ".cwe" and flash it.
4. Then, select the corresponding PRI, i.e. the ".nvu" file from **Sim PRI Config** and flash it.
5. After the upgrade is completed, click on the **RESTART** button and confirm with a **YES**.
6. This procedure can take 3 to 5 minutes to finish. Wait for the reboot and make sure the SIM slot is holding the desired SIM.

Firmware mapping to an operator

Once a firmware is uploaded it has to be linked to a Wireless carrier/ operator. Typically a SIM has an IMSI number. The first 6 digits constitute the MCC and MNC will help FortiExtender determine the Carrier of choice most of the time. Otherwise a new entry needs to be created.

Refer to the CLI Help Section for configuration details.

Product Integration and Support

Modes of operation

FortiExtender supports Connected UTM mode of operation only.

Connected UTM mode

This is the default mode of operation where the FortiGate provides centralized management of the FortiExtender infrastructure. In this mode the device discovers the FortiGate using the CAPWAP protocol and WAN traffic is tunneled to the FortiGate's wireless WAN virtual interface. For connect UTM mode, FortiGates must run FortiOS v5.2.0 or later.

FortiExtender v3.1.0 support

The following table lists FortiExtender product integration and support information.

FortiExtender 3.0.2 Support	
Web Browsers	Microsoft Internet Explorer versions 10 and 11
	Mozilla Firefox version 33
	Other web browsers may function correctly, but are not supported by Fortinet.
FortiOS/FortiOS Carrier	v5.2.0 and later
FortiManager	v5.0.7 and later
	v5.2.0 and later

USB modem support

The following tables list USB modems that are supported for various models.

FortiExtender-20D

The following table lists USB modems that are supported by the FortiExtender-20D:

Brand	Modem Model	Operator / Area
Netgear	340U	AT&T (USA)
Sprint	341U	Sprint (USA)
Sierra	313	AT&T (USA)
Pantech	295	Verizon
ZTE	820B	Claro (Puerto Rico)
ZTE	MF683	T-Mobile
Novatel	MF620L	Verizon
Huawei	E398	Any GSM/LTE
Huawei	UMG1691	T-Mobile
Huawei	E173	Any GSM, 3G, HSPA network
Huawei	E3276	Any GSM/LTE
TPLINK	MA260	Any GSM/3G
TPLINK	MA180	Any GSM/3G
ZTE	K3520-Z	HSDPA, WCDMA
ZTE	K3563-Z	
ZTE	K3565-Z	HSDPA 3.6/0.38
ZTE	K3570-Z	HSDPA 3.6/0.38
ZTE	K3571-Z	HSDPA 7.2/0.38
ZTE	K4505-Z	HSPA+ 21.6/5.76
ZTE	K5006-Z	LTE CAT3
ZTE	MF30	HSDPA 7.2 HSUPA 5.76
ZTE	MF60	HSPA+ 21.6/5.76
ZTE	MF100	HSDPA 3.6/0.38
ZTE	MF110	HSDPA 7.2 HSUPA 5.76

Brand	Modem Model	Operator / Area
ZTE	MF112	HSDPA 7.2 HSUPA 2.0
ZTE	MF170	HSDPA 3.6/0.38
ZTE	MF190	HSDPA 7.2 HSUPA 2.0
ZTE	MF626	HSDPA 3.6/0.38
ZTE	MF627	HSDPA 7.2 HSUPA 5.76
ZTE	MF632	HSDPA 7.2 HSUPA 3.6
ZTE	MF633	HSDPA 7.2 HSUPA 5.76
ZTE	MF636	HSDPA 7.2 HSUPA 5.76
ZTE	MF637	HSDPA 7.2 HSUPA 5.76
ZTE	MF637U	HSDPA 7.2 HSUPA 5.76
ZTE	MF662	HSPA+ 21.6/5.76
ZTE	MF668	HSPA+ 21.6/5.76
ZTE	MF668A	HSPA+ 21.6/5.76
ZTE	MF669	HSPA+ 21.6/5.76
ZTE	MF680	DC-HSPA+ 42.2/5.76
ZTE	MF683	DC-HSPA+ 42.2/5.76
ZTE	MF820D	LTE CAT3
ZTE	MF821	LTE CAT3
ZTE	MF821D	LTE CAT3
ZTE	MF880	LTE CAT3
ZTE	MT505UP	HSUPA
ZTE	MT512HS	HSDPA 7.2 HSUPA 3.6
ZTE	MT8205	LTE CAT3
HUAWEI	B81	HSDPA 7.2 HSUPA 5.76

Brand	Modem Model	Operator / Area
HUAWEI	D33HW	HSPA+ 21.6/5.76
HUAWEI	D41HW	DC-HSPA+ 42.2/11.5
HUAWEI	E153	HSDPA 3.6/0.38
HUAWEI	E156G	HSDPA 3.6/0.38
HUAWEI	E171	HSDPA 7.2 HSUPA 5.76
HUAWEI	E173	HSDPA 7.2 HSUPA 5.76
HUAWEI	E180V	HSDPA 7.2 HSUPA 5.76
HUAWEI	E200	HSDPA 3.6
HUAWEI	E261	HSDPA 7.2 HSUPA 5.76
HUAWEI	E270+	HSPA+ 21.6/5.76
HUAWEI	E303F	HSPA+ 21.6/5.76
HUAWEI	E352	HSPA+ 21.6/5.76
HUAWEI	E353W-u1	HSPA+ 21.6/5.76
HUAWEI	E367	DC-HSPA+ 28.8/5.76
HUAWEI	E372	DC-HSPA+ 42.2/5.76
HUAWEI	E389	LTE CAT3
HUAWEI	E392	LTE CAT3
HUAWEI	E398	LTE CAT3
HUAWEI	E398u-15	LTE CAT3
HUAWEI	E1552	HSDPA 3.6/0.38
HUAWEI	E1690	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1691	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1692	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1731Bu-1	HSPA+ 21.6/5.76

Brand	Modem Model	Operator / Area
HUAWEI	E1762	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1800	HSDPA 7.2 HSUPA 5.76
HUAWEI	E1815	HSPA+ 21.6/5.76
HUAWEI	E1820	HSPA+ 21.6/5.76
HUAWEI	E1823	HSPA+ 21.6/5.76
HUAWEI	E3131s-2	HSPA+ 21.6/5.76
HUAWEI	EC122	CDMA2000
HUAWEI	EC176-2	CDMA EV-DO Rev.A
HUAWEI	EC178	CDMA EV-DO Rev.A
HUAWEI	EC189	HSDPA 7.2 HSUPA 5.76
HUAWEI	EC306	HSPA+ 21.6/5.76
HUAWEI	EC1270	DC-HSPA+ 42.2/11.5
HUAWEI	Speedstick LTE	HSDPA 3.6/0.38
HUAWEI	E3372	LTE CAT4

Resolved Issues

The following issues have been fixed in version v3.1.0. For inquiries about a particular bug, please contact [Customer Service & Support](#).

Bug ID	Description
0377154	No signal strength LED status on FEXT20D.
N/A	Novatel 620B connectivity issues.
N/A	Syslog reporting on currently active SIM.

Known Issues

The following issues have been identified in v3.1.0. For inquiries about a particular bug, please contact [Customer Service & Support](#).

FortiExtender 40D:

Bug ID	Description
N/A	[Sprint Cert] missing fields like DRC, PN code, PN offset, etc. in EVDO AT command output.
N/A	Physical insertion of a SIM requires a FortiExtender-40D power cycle.
N/A	FortiExtender mode change from CAPWAP to VLAN or vice-versa requires a power cycle.



High Performance Network Security



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